CLAIMS

What is claimed is:

1.   A method of transmitting data through a mesh of data switches, the
method comprising:

receiving a data frame at a first port of a first data switch, the data frame
originating at a first MAC device and having a destination address associated with a
second MAC device, the second MAC device being associated with a destination data
switch in the mesh;

associating the destination address with one of a single port and an aggregation of
ports of the first data switch, each port in the aggregation of ports providing a data path
through the mesh of data switches to the destination data switch; and

selecting a port in the aggregation of ports for transmitting the data frame to the
destination data switch if the destination address is associated with an aggregation of
ports.

2.   The method of claim 1, the method further comprising:
associating the destination address with the destination data switch; and

determining the associated port or aggregation of ports based upon the destination
data switch.

3.   The method of claim 1, the method further comprising selecting a port in
the aggregation of ports for transmitting the data frame based upon one of the destination
address and a source address of the data frame associated with the first MAC device.

4.   The method of claim 1, the method further comprising:

maintaining a data structure associating each of a plurality of destination
addresses with one of a port and an aggregation of ports on the data switch;

receiving a second data frame having a destination address corresponding with a
third MAC device on a receiving port of the data switch;

comparing the destination address of the second data frame with the data structure
to determine a match with a port or aggregation of ports; and

if no match is determined, transmitting the second data frame through the mesh of
data switches according to a spanning tree protocol.

5.   The method of claim 4, the method further comprising:

receiving a message at the data switch specifying a destination data switch
associated with the destination address of the second data frame;

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4   associating in the data structure the destination address of the second data frame

5   with a transmitting port on the data switch; and

6   suspending a transition for transmission of subsequent data frames to the third MAC

7   device through a data path including the transmitting port to ensure a delay from a

8   transmission of a last data frame according to the spanning tree protocol to a transmission

9   of a first data frame through the data path.

1   6.   The method of claim 1, the method further comprising:

2   maintaining a data structure associating each of a plurality of MAC device addresses with

3   a destination data switch in the mesh;

4   receiving a second data frame originating at a third MAC device on a receiving

5   port of the first data switch, the second data frame having a source address associated

6   with the third MAC device;

7   comparing the source address of the second data frame with the data structure to

8   determine a match with a destination data switch; and

9   if no match is determined, transmitting a message to at least one other data switch

10   in the mesh specifying the first data switch as a destination data switch of the third MAC

11   device.

1   7.   A source data switch for transmitting data frames through a mesh of data

2   switches, the source data switch comprising:

3   a switching fabric including a plurality of ports;

4   logic to maintain a data structure associating each of a plurality of destination

5   addresses of MAC devices coupled to a mesh of data switches with one of a port and an

6   aggregation of ports of the switching fabric, each port in the aggregation of ports coupling

7   to a data path through the mesh of switches to a MAC device having the destination

8   address; and

9   logic to select a port from among an aggregation of ports for transmitting a data

10   frame received at the switching fabric if a destination address of received data frame is

11   associated with the aggregation of ports.

1   8.   The source data switch of claim 7, the source data switch further

2   comprising:

3   logic to associate the destination address of the received data frame with a

4   destination data switch; and

5   logic to select a port from the aggregation of ports based upon the destination data

6   switch for transmission of the received data frame.

1   9.   The source data switch of claim 7, the source data switch further

2   comprising logic to select a port in the aggregation of ports for transmission of the

3   received data frame based upon one of a destination address and a source address of the

4   received data frame.

1   10.   The source data switch of claim 7, the source data switch further

2   comprising:

3   logic to compare the destination address of the received data frame with the data

4   structure to determine a match with a port or aggregation of ports; and

5   logic to initiate transmission of the received data frame through the mesh of data

6   switches according to a spanning tree protocol if no match is determined.

1   11.   The source data switch of claim 10, the source data switch further

2   comprising:

3   logic to receive a message specifying a destination data switch associated with the

4   destination address of the received data frame;

5   logic to associate in the data structure the destination address of the received data

6   frame with a transmitting port of the switching fabric based upon the destination data

7   switch; and

8   logic to suspend a transition for transmission of subsequent data frames to the destination

9   address through a data path including the transmitting port to ensure a delay from a

10   transmission of a last data frame according to the spanning tree protocol to a transmission

11   of a first data frame through the data path.

1   12.   The source data switch of claim 7, the source data switch further

2   comprising:

3   logic to compare the source address of the received data frame with the data

4   structure to determine a match with a destination data switch; and

5   logic to initiate transmission of a message to at least one data switch in the mesh

6   specifying a data switch hosting the switching fabric as a destination data switch for data

7   frames having a destination address corresponding with the source address of the received

8   data frame.

1   13.   A data switch controller comprising:

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2   an interface adapted for coupling to a switching fabric, the switching fabric

3   including a plurality of ports;

4   logic to maintain a data structure associating each of a plurality of destination

5   addresses of MAC devices coupled to a mesh of data switches with one of a port and an

6   aggregation of ports of the switching fabric, each port in the aggregation of ports coupling

7   to a data path through the mesh of switches to a MAC device having the destination

8   address;

9   logic to select a port from among an aggregation of ports for transmitting a data

10   frame received at the switching fabric if a destination address of received data frame is

11   associated with the aggregation of ports.

1   14.   The data switch controller of claim 13, the data switch controller further

2   comprising:

3   logic to associate the destination address of the received data frame with a

4   destination data switch; and

5   logic to select a port from the aggregation of ports based upon the destination data

6   switch for transmission of the received data frame.

1   15.   The data switch controller of claim 13, the data switch controller further

2   comprising logic to select a port in the aggregation of ports for transmission of the

3   received data frame based upon one of a destination address and a source address of the

4   received data frame.

1   16.   The data switch controller of claim 13, the data switch controller further

2   comprising:

3   logic to compare the destination address of the received data frame with the data

4   structure to determine a match with a port or aggregation of ports; and

5   logic to initiate transmission of the received data frame through the mesh of data

6   switches according to a spanning tree protocol if no match is determined.

1   17.   The data switch controller of claim 16, the data switch controller further

2   comprising:

3   logic to receive a message specifying a destination data switch associated with the

4   destination address of the received data frame;

5   logic to associate in the data structure the destination address of the received data

6   frame with a transmitting port of the switching fabric based upon the destination data

7   switch; and

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8   logic to suspend a transition for transmission of subsequent data frames to the

9   destination address through a data path including the transmitting port to ensure a delay

10   from a transmission of a last data frame according to the spanning tree protocol to a

11   transmission of a first data frame through the data path.

1   18.   The data switch controller of claim 13, the data switch controller further

2   comprising:

3   logic to compare the source address of the received data frame with the data

4   structure to determine a match with a destination data switch; and

5   logic to initiate transmission of a message to at least one data switch in the mesh

6   specifying a data switch hosting the switching fabric as a destination data switch for data

7   frames having a destination address corresponding with the source address of the received

8   data frame.

1   19.   A data network for transmitting data frames from a source MAC device to

2   a destination MAC device, the data network comprising:

3   a destination data switch coupled to a destination MAC device;

4   a mesh of data switches coupled to the destination data switch for transmitting

5   data frames originating at a source MAC device to the destination MAC device; and

6   a source data switch coupled to the source MAC device including:

7   a switching fabric including a plurality of ports;

8   logic to maintain a data structure associating each of a plurality of destination

9   addresses of MAC devices coupled to a mesh of data switches with one of a port and an

10   aggregation of ports of the switching fabric, each port in the aggregation of ports coupling

11   to a data path through the mesh of switches to a MAC device having the destination

12   address; and

13   logic to select a port from among an aggregation of ports for transmitting a data

14   frame received at the switching fabric if a destination address of received data frame is

15   associated with the aggregation of ports.

1   20.   The data network of claim 19, wherein the source data switch further

2   comprises:

3   logic to associate the destination address of the received data frame with a

4   destination data switch; and

5   logic to select a port from the aggregation of ports based upon the destination data

6   switch for transmission of the received data frame.

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21.   The data network of claim 19, wherein the source data switch further comprises logic to select a port in the aggregation of ports for transmission of the received data frame based upon one of a destination address and a source address of the received data frame.

22.   The data network of claim 7, the source data switch further comprising:

logic to compare the destination address of the received data frame with the data structure to determine a match with a port or aggregation of ports; and

logic to initiation transmission of the received data frame through the mesh of data switches according to a spanning tree protocol if no match is determined.

·23.   The data network of claim 22, wherein the source data switch further comprises:

logic to receive a message specifying a destination data switch associated with the destination address of the received data frame;

logic to associate in the data structure the destination address of the received data frame with a transmitting port of the switching fabric based upon the destination data switch; and

logic to suspend a transition for transmission of subsequent data frames to the destination address through a data path including the transmitting port to ensure a delay from a transmission of a last data frame according to the spanning tree protocol to a transmission of a first data frame through the data path.

24.   The data network of claim 19, wherein the source data switch further comprises:

logic to compare the source address of the received data frame with the data structure to determine a match with a destination data switch; and

logic to initiate transmission of a message to at least one data switch in the mesh specifying a data switch hosting the switching fabric as a destination data switch for data frames having a destination address corresponding with the source address of the received data frame.

25.   An article comprising:

a storage medium comprising machine-readable instructions stored thereon for:

detecting receipt of a data frame at a first port of a switching fabric, the switching fabric having a plurality of ports, the data frame having a destination

5 address associated with a destination MAC device coupled to the switching fabric

6 through a mesh of data switches at a destination data switch;

7 associating the destination address with one of a single port and an

8 aggregation of ports of the switching, each port in the aggregation of ports

9 providing a data path through the mesh of data switches to the destination data

10 switch; and

11 selecting a port in the aggregation of ports for transmitting the data frame

12 to the destination data switch if the destination address is associated with an

13 aggregation of ports.

1 26. The article of claim 25, wherein the storage medium further comprises

2 machine-readable instructions stored thereon for:

3 associating the destination address of the received data frame with a destination

4 data switch; and

5 selecting a port from the aggregation of ports based upon the destination data

6 switch for transmission of the received data frame.

1 27. The article of claim 25, wherein the storage medium further comprises

2 machine-readable instructions stored thereon for selecting a port in the aggregation of

3 ports for transmission of the received data frame based upon one of a destination address

4 and a source address of the received data frame.

1 28. The article of claim 25, wherein the storage medium further comprises

2 machine-readable instructions stored thereon for:

3 associating the destination address of the received data frame with a port or

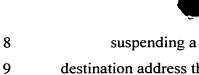4 aggregation of ports to determine a match; and

5 initiating transmission of the received data frame through the mesh of data

6 switches according to a spanning tree protocol if no match is determined.

1 29. The article of claim 28, wherein the storage medium further comprises

2 machine-readable instructions stored thereon for:

3 receiving a message specifying a destination data switch associated with the

4 destination address of the received data frame;

5 associating in a data structure the destination address of the received data frame

6 with a transmitting port of the switching fabric based upon the destination data switch;

7 and

8   suspending a transition for transmission of subsequent data frames to the

9   destination address through a data path including the transmitting port to ensure a delay

10   from a transmission of a last data frame according to the spanning tree protocol to a

11   transmission of a first data frame through the data path.

1   30.   The article of claim 25, wherein the storage medium further comprises

2   machine-readable instructions stored thereon for:

3   associating the source address of the received data frame with a destination data

4   switch to determine a match; and

5   initiating transmission of a message to at least one data switch in the mesh

6   specifying a data switch hosting the switching fabric as a destination data switch for data

7   frames having a destination address corresponding with the source address of the received

8   data frame.